Project Management Overview

Introduction

This section provides an overview and description of the Office of Information Technology Best Practices for project management.

Project Management Methodology Concept

The first part of this section provides a definition of the Project Management Methodology concept. The concept document discusses the elements of project management and how these elements are interrelated.

What is a Project?

The second part of this section provides a definition for the term project. This definition is important in understanding how and when the methodology should be applied.

Roles and Responsibilities

The third part of this section provides the groundwork for identifying the basic roles and responsibilities of those parties who will contribute to the success of a project.

Planning Process

The fourth part of this section provides the overview of the value of planning throughout a project life cycle.

Project Management Overview

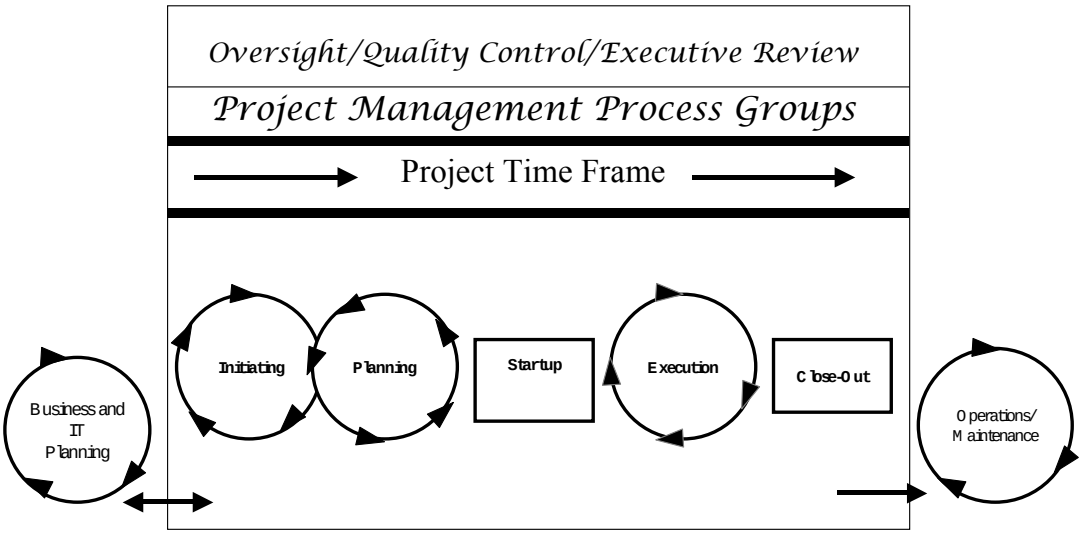
Project Initiating and Concept Development

What is Project Management Methodology?

The objective of project management methodology is to provide common standards to ensure that projects are conducted in a disciplined, well-managed, and consistent manner. The ultimate goals of this methodology are to promote the delivery of quality products that result in projects which are completed on time, within budget and accomplish the stated business objectives.

The methodology is conceptually shown in the figure below.

Project Management



Project Management is an Iterative Process

The arrows indicate that project management is an iterative process. It is not a lock-step sequence of activities. In some instances, process groups overlap. The delineation between initiating and planning can sometimes be difficult to distinguish.

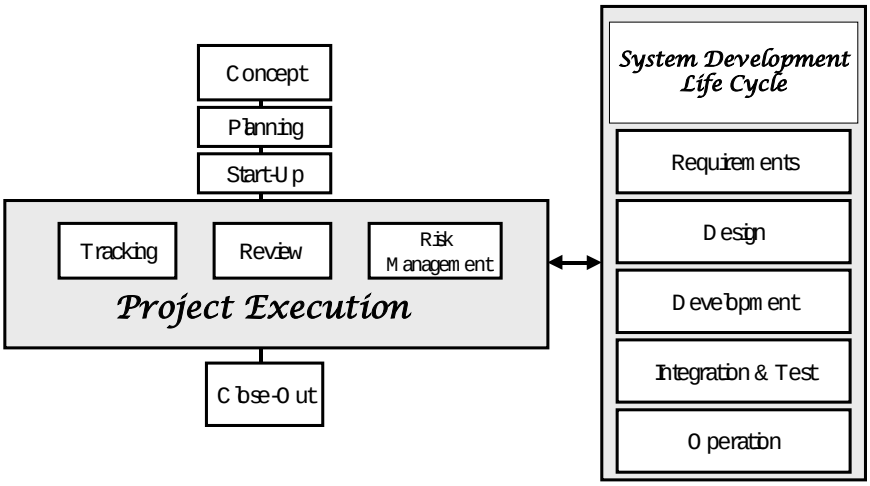
Other activities, such as oversight, quality control, and executive review, are ongoing and affect each and every cycle of the project.

This methodology represents the coordinating mechanism between strategic planning, program implementation, project implementation and on-going operations, state agencies, ITAB, Office of Information Technology, Office of Budget and Planning and the legislature. This methodology addresses the management of the project only, not the life cycle of a project development effort.

Project Management Overview

Project Initiating and Concept Development

Relationship of Project Management Methodology to the System Development Life Cycle



The Relationship of Project Management to the System Development Life Cycle (SDLC)

As illustrated above, the SDLC occurs within the project execution portion of a project. The project management and associated activities are independent of the specific development methodology selected. This same concept would be true for any other type of development methodology such as design, procurement and construction.

The model is not intended as a specific development life cycle model (such as a waterfall or spiral development). Instead, it is a generic methodology for project management that accommodates various development approaches and a variety of detailed execution procedures.

Applicability of the Methodology

The project management methodology is potentially applicable to the management of any and all types of projects in the State of Missouri. How the methodology is applied is based on project management principles defined in the OIT Project Management policies, the magnitude of the project and the project risks.

Tailoring of the Methodology to Specific Project and Specific Organizations

The methodology is adaptable to meet the unique requirements of a very wide variety of projects conducted by the State of Missouri.

Large, complex projects require a more rigorous application of management processes than small, well-defined projects with readily achievable goals. This methodology supports this need for flexibility.

The project manager assesses the project characteristics and determines how to tailor the methodology and what project management processes are required. This tailoring is then reflected in the Project Plan.

Depending upon the basic processes that a state organization currently has in place to support project management, some changes may be required to successfully implement the methodology. Some of the materials are guidelines, and organizations are encouraged to add to the processes to suit their environment.

The material presented here is not intended to be a step-by-step recipe or cookbook for managing a project. Project management requires far too much judgment and contains far too many variables and specifics to successfully accomplish using a simple cookbook approach.

Continual Improvements

A methodology should not become stagnant or obsolete. Processes should be established to improve the methodology over time. Process improvement is a cyclical process that requires mechanisms to continually evaluate and refine improvements until a process is fully optimized for the organization.

> ***It is important to provide continual input on ways to improve project management.***

The Office of Information Technology is responsible for the methodology. The state organizations and their project staffs have the following responsibilities:

- To provide continual input for improvement of the policies and the methodology. One way to accomplish this objective is to invite OIT representatives to the Lessons Learned Sessions at the end of each project.
- To ensure that project management policies are implemented within their organizations.

The OIT will continuously review policies, methodologies, and guidelines, to improve project management of technology projects.

Project Management Overview

What is a Project?

What is a Project?

Defining what a project is helps in understanding the project management methodology and its effectiveness. Throughout this methodology, a project is defined as:

> *A project is a temporary process, which has a clearly defined start and end time, a set of tasks, and a budget, that is developed to accomplish a well-defined goal or objective.*

The project management techniques defined in this methodology must be applied to a project. Typically, a project is initiated by a person (or group) who realizes that a specific problem needs resolution. When the problem is defined, an initial concept is developed around potential solutions. Once the project concept is defined then a complete project plan can be developed. It is the execution of a well developed project plan which then leads to project success.

Temporary Process

A project is considered a temporary process because once the end goal is achieved, the project is complete. For this reason, the end point of a project needs to be defined at the very beginning of the project to ensure successful completion. The reason some projects never end is because no one ever defined what constitutes complete!

The basic questions for defining success criteria are:

- Why are we doing this project?
- What do we hope to change?
- How will we measure success?

Criteria for project success is quantifiable and measurable, and is expressed in terms of business value.

Well-Defined Goals

Projects require well-defined goals to determine project completion. Without well-defined goals and objectives, a project lacks purpose.

Project Management Overview

What is a Project?

GOAL SETTING

[Alice said] "Would you tell me, please, which way I ought to go from here?"

"That depends a good deal on where you want to get to," said the Cat.

"I don't know where. . ." said Alice.

"Then it doesn't matter which way you go," said the Cat.

—Alice in Wonderland

by Lewis Carroll

This focus is accomplished by clear definition of milestones and deliverables. The problem definition needs to be carefully crafted. This process will determine the project objective, focus, and the approaches for resolution. Without a clearly defined focus and stated objectives, the project will incur cost and time overruns, and may ultimately fail.

Project Constraints

All projects have constraints and these need to be defined from the onset. Projects have resource limits in terms of people, money, time, and equipment. While these may be adjusted, they are considered fixed resources by the project manager. These constraints form the basis for planning the project.

What is Project Management?

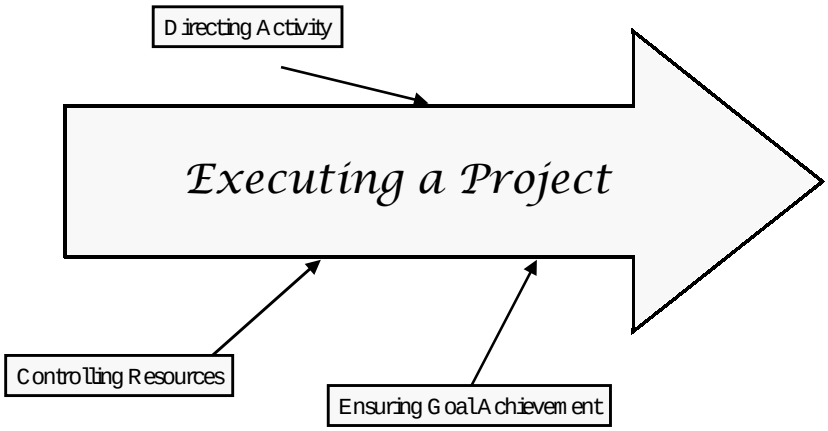
All of the processes associated with defining, planning and executing the project are considered part of project management.

WHAT IS PROJECT MANAGEMENT?

Directing the activities associated with executing a project while controlling limited resources efficiently and effectively, ensuring that the end goal is successfully achieved.

Project Management Overview

What is a Project?



Successful project management requires established processes for organizational planning and communication, availability of tools that support management processes, and a culture that values cooperation, teamwork, and planning.

Project management requires general management knowledge. The principles, practices, concepts, techniques, tools, and skills of general management are the foundation for project management. These skills include the ability to work well with people, to take responsibility, to lead a group, and to make decisions.

Roles and Responsibilities

A successful project requires that all components of the project team buys into the project plan, and accepts responsibility for completion of assignments.

It is important to have a defined formal structure for the project and for the project staff. This provides each individual with a clear understanding of the authority given and responsibility necessary for the successful accomplishment of the project activities. Project team members need to be accountable for the effective performance of their assignments.

Project organizations come in many forms. On a large project, individual role assignments may require full-time attention to the function. On smaller projects, role assignments may be performed part-time, with staff sharing in the execution of multiple functions.

Who is Part of the Project Team?

The required mix for any project team includes groups or individuals like the following:

- People specifically charged with execution of the project solution. Regardless of how a project is organized, there are roles and responsibilities that should be considered for every IT project. These include things like:
  - Database administration
  - Project management
  - Data communications
  - System testing
  - Conversion
  - Documentation (user and technical)
  - Training
  - System architecture
- Leaders/decision makers from the state organization represented by the Steering Committee
- Users who interface with outputs to the system (either from within or outside of the state organization).
- Project sponsor.

Importance of Stakeholders

Stakeholders are those with a vested interest in the success of the project. The identification and input of stakeholders helps to define, clarify, change, and contribute to the scope and, ultimately, the success of the project.

To ensure project success, identify stakeholders early in the project, determine their needs and expectations, and manage those expectations over the course of the project.

Roles and Responsibilities

Stakeholders on every project include:

- the project manager, who has ultimate responsibility for ensuring project success.
- the project sponsor, who leads in getting the need for the project recognized.
- the user, who is the person or organization using the product of the project.
- state organization management, who refines business needs of the project.
- the project team members, who are responsible for performing the work on the project.
- configuration management and quality control entities within a state organization.
- Office of Budget and Planning and the Missouri Legislature.
- OIT, which is interested in the success of all IT projects.
- Division of Purchases, who is interested in projects which involve a contractor.
- Legislative Joint Committee on Information Technology (JCIT), who provide legislative oversight.
- Chief Information Officer

Customers, both internal and external to the organization, are to be considered important stakeholders. Without input from the user community, projects are more likely to fail. Having user-defined project goals, directly traceable to the final solution, increases the success factor for a given project.

The management of stakeholder expectations is potentially difficult because of conflicting goals and expectations. The expectations may require more resources than are currently available. Finding appropriate resolutions to these differences is a key to successful project management. A major project that does not have backing of senior management, for example, will have difficulty achieving success.

Project Manager

The project manager has primary responsibility for the quality of a project's deliverables and its successful completion. To succeed, the project manager must work closely with the project sponsor to ensure that adequate resources are applied. The project manager also has responsibility for planning and ensuring that the project is successfully completed on time and within budget. Ideally, the project manager should be assigned early in the initiating and planning processes so the plan can be owned by the person responsible for its execution.

Project Management Overview

Roles and Responsibilities

Project Manager Responsibilities

GENERAL FUNCTIONS

- Implement project policies and procedures.
- Identify and acquiring resources through the Project Sponsor and Steering Committee.
- Maintain staff technical proficiency and productivity, and provide training where required.
- Establish and maintain quality in project.
- Identify and procure tools to be used on the project.

INITIATING

- Develop Project Statement including success criteria and constraints.
- Conduct general cost/benefit analysis.

PLANNING

- Develop detailed project plan, tailoring methodology to reflect project needs.
- Ensure that management, users, affected state organizations, and contractors commit to project.

PROJECT START-UP

- Finalize project baseline plan.
- Assign resources to project and assign work packages.
- Finalize project quality and CM plans.

PROJECT EXECUTION

- Regularly review project status, comparing budgeted to actual values and present to Steering Committee.
- Ensure that project plan is updated and approved as needed.
- Review the results of QA reviews.
- Participate in change control board to approve system changes.
- Update project risks and establish prevention and mitigation procedures, as required.

CLOSE-OUT

- Develop an action plan for any product that does not receive user sign-off.
- Obtain user and management approval of tested system and final deliverables.
- Close-out open action items.
- Assist Division of Purchases in contract close-out.
- Develop Post Implementation Evaluation Report (PIER)
- Conduct lessons learned session.
- Facilitate the celebration of project success.

Project Management Overview

Roles and Responsibilities

Project Sponsor

One of the important project stakeholders is the project sponsor. The project sponsor should have the influence to ensure that the project has sufficient priority to enable success. The sponsor along with the Steering Committee is also responsible for providing the funding and staffing resources to complete the project successfully.

The project sponsor usually represents the recipient of the project's end result. A good project sponsor is a prerequisite for a great project manager. The sponsor is usually head of a program area and not normally a day-to-day user. The project sponsor is typically part of the state organization's management and should be a strong advocate for the project.

Project Sponsor Responsibilities

GENERAL FUNCTIONS

- Articulate program or executive requirements.
- Ensure that requirements are met.
- Serve as active member of Steering Committee. (May serve as chairman)

INITIATING

- Define sponsor needs.
- Ensure user and executive support of project.

PLANNING

- Review and approve project plan.
- Participate in planning activities.
- Approve funding along with Steering Committee.

PROJECT START-UP

- Assign personnel through the Project Manager.
- Attend Kick-off meeting.

PROJECT EXECUTION

- Attend requirements reviews.
- Provide written agreement to requirements.
- Attend Steering Committee meetings.
- Help resolve project problems either directly with project manager or as a member of the Steering Committee.

CLOSE-OUT

- Attend lessons learned meeting.

Steering Committee

The Steering Committee represents the state and identifies the need for projects, assesses project risk, and approves project commitments. They are responsible for establishing the strategic information technology plans and for ensuring that projects are consistent with those plans. They are also responsible for developing the procedures to ensure that IT policies are followed.

Steering Committee Responsibilities

GENERAL FUNCTIONS

- Prioritize IT needs and include in state organization strategic plan.
- Ensure that sufficient resources are available to conduct projects.
- Review/approve commitments to external entities (e.g., vendors, other agencies).
- Ensure that staff is properly trained.

INITIATING

- Select project manager and assist in staffing effort.
- Review/approve Project Statement and Cost Benefit Analysis

PLANNING

- Review/approve project plan including risk analysis.
- Budget and establish financial reserves based on Risk Analysis Worksheet.

PROJECT START-UP

- Ensure project staff availability.
- Ensure that funding is available.

PROJECT EXECUTION

- Regularly participate in executive management reviews and/or Steering Committee Meetings.
- Approve changes to the project plan.
- Review risk mitigation plans and act on Project Manager recommendations.
- Review/approve changes in contract commitments.
- Review/approve project deliverables.

CLOSE-OUT

- Participate in lessons learned sessions.
- Accept and approve deliverables.
- Approve project/phase completion.

Development Team

The Development Team has responsibility for conducting project activities defined by the plan. The development manager assists the project manager in planning the development effort and makes commitments to complete the project within established schedule and budget constraints. The development team includes the specialists responsible for implementing the project solution. Stakeholders should interact with the development team to ensure that requirements are correctly implemented.

Development Team Responsibilities

GENERAL FUNCTIONS

- Identify solution alternatives.
- Implement solution within budgeted cost and schedule.
- Coordinate with QA organization.
- Support project planning and tracking activities.

INITIATING

- Provide general estimates for developing deliverables.
- Conduct feasibility studies, if applicable.

PLANNING

- Develop approach and associated estimates and schedules.
- Assist in the development of a QA/CM plan.
- Identify productivity tools for project.

PROJECT START-UP

- Ensure that all members of the development team understand the project plan and system requirements.
- Coordinate staff training efforts.
- Establish the project's engineering facilities and environments.

PROJECT EXECUTION

- Submit status reports to the Project Manager.
- Conduct work using System Development Lifecycle Methodology.
- Coordinate with QA, review QA results, and correct any deviations.
- Help establish baseline documents.
- Develop project deliverables.
- Establish testing plan and coordinate test activities.
- Identify risks as they are found.
- Participate in change reviews including performing Cost Schedule Impact Analysis.

CLOSE-OUT

- Participate in lessons learned sessions.

Project Management Overview

Roles and Responsibilities

Configuration Management

The CM function is responsible for planning, coordinating, and implementing project CM activities. In general, they are responsible for identifying changes of any kind to the project and ensuring that they are carefully managed.

Configuration Management Responsibilities

GENERAL FUNCTIONS

- Identify CM needs on projects.
- Maintain project library and repository of project metrics.

INITIATING

- Provide CM approach based on requirements and organization standards.

PLANNING

- Help develop project CM plan.
- Help identify items to be placed under CM control.
- Help identify CM tools that support project needs.

PROJECT START-UP

- Update CM plan.
- Create and supervise the project baseline library.
- Place control items under control.

PROJECT EXECUTION

- Lead project change control board and distribute change information.
- Record CM actions and maintain action item list.
- Manage access to the project library.
- Control and distribute products.
- Track all items placed under CM control.
- Perform CM audits.

CLOSE-OUT

- Participate in lessons learned session.
- Archive project library with agency and OIT.

Quality Assurance

The Quality Assurance function ensures that the required processes and standards are followed.

Quality Assurance Responsibilities

GENERAL FUNCTIONS

- Review and verify that QA processes are followed.

INITIATING

- Ensure that processes are followed.

PLANNING

- Verify that plans are reviewed by all affected groups.
- Review process used for estimating and planning.

PROJECT START-UP

- Verify that requirements are clear, verifiable, and testable.
- Ensure that risks are properly identified and tracked.
- Provide orientation to project staff and managers on the role of QA.

PROJECT EXECUTION

- Verify that state organization and project policies are followed.
- Collect and analyze project metric data.
- Coordinate audits and participate in internal reviews, as appropriate.
- Maintain noncompliance issues list under CM control.
- Observe testing and inspect test reports.
- Verify deliverables for conformance to policy.

CLOSE-OUT

- Product QA group ensures deliverables meet specifications.
- Process QA ensures policies are implemented successfully.
- Participate in lessons learned session.

Roles and Responsibilities

End User

End users are responsible for ensuring that their needs are expressed and for verifying that a completed project meets those expressed needs.

End User Responsibilities

GENERAL FUNCTIONS

- Articulate user requirements.
- Ensure that requirements are met.
- Ensure that staff are “ready to accept” the new system.
- Be proponents of new system.

INITIATING

- Define user needs.

PLANNING

- Review project plan (as part of Steering Committee).

PROJECT START-UP

- Assign user personnel to the project as required.

PROJECT EXECUTION

- Assist in developing requirements.
- Review design.
- Provide written agreement on requirements and qualifying criteria.
- Assist in user testing.
- Approve delivery and installation procedures.
- Review current business practices and the impact the new system will have on the practices.
- Develop procedures, policies, and processes to support the new system.

CLOSE-OUT

- Sign-off on deliverables.
- Attend lessons learned session.

Project Management Overview

Roles and Responsibilities

ITAB, CIO and Project Review Team Management

The Information Technology Advisory board (ITAB) is responsible for adopting statewide information technology policies, standards, procedures, methodologies, IT architecture and strategic plans for the State of Missouri.

ITAB is also responsible for proposing information technology policies and procedures, project management methodologies, an information technology architecture, standards for data management and a strategic information technology management plan for the state.

The Project Review Team of ITAB is responsible for ensuring that these policies are followed by all state organizations. Please refer to Appendix C for additional details. The review function includes reviewing proposed projects, contracts, and other project commitments, determining oversight requirements and, when necessary, recommending corrective action for a troubled project. OIT also reviews bid specifications for projects.

ITAB, CIO and Project Review Team Responsibilities

GENERAL FUNCTIONS

- Define State IT policy. (ITAB)
- Recommend project management methodology. (ITAB)
- Provide leadership and resources to improve project management for IT projects. (CIO)
- Review state organization's deviations from standards and policies. (ITAB / Project Review Team)

INITIATING

PLANNING

- Review and help identify project risks. (Project Review Team)
- Verify that project goals are defined. (Project Review Team)
- Assign oversight for high risk projects. (Project Review Team)
- Review project plan. (Project Review Team)

PROJECT START-UP

PROJECT EXECUTION

- Ensure project oversight is performed on projects that have been so designated. (CIO)
- Review project status. (CIO)
- Make recommendation to suspend or terminate poorly performing projects. (CIO)

CLOSE-OUT

- Collect and archive project database. (state organizations)
- Review and archive post implementation evaluation report. (state organizations)
- Participate in lessons learned meetings. (CIO)

Division of Purchases

Office of Administration Division of Purchasing is responsible for developing and enforcing the terms and conditions of a request for proposal (RFP), request for bid (RFB) and a subsequent contract, if work on the project is contracted or requires the acquisition of equipment, software or other purchased assets or resources.

Division of Purchasing Responsibilities

GENERAL FUNCTIONS

- Ensure that appropriate terms and conditions are included in procurement documents and contract.
- Negotiate contracts.
- Serve as primary point of contact with contractors through bid and proposal efforts.
- Assist in selection of contractors.

INITIATING

- Determine if procurement support is required.

PROJECT START-UP

- Establish the terms and conditions of contracts.
- Execute, negotiate, and finalize contracts.

PROJECT EXECUTION

- Maintain master file of contract correspondence, invoices and letters of transmittal.

CLOSE-OUT

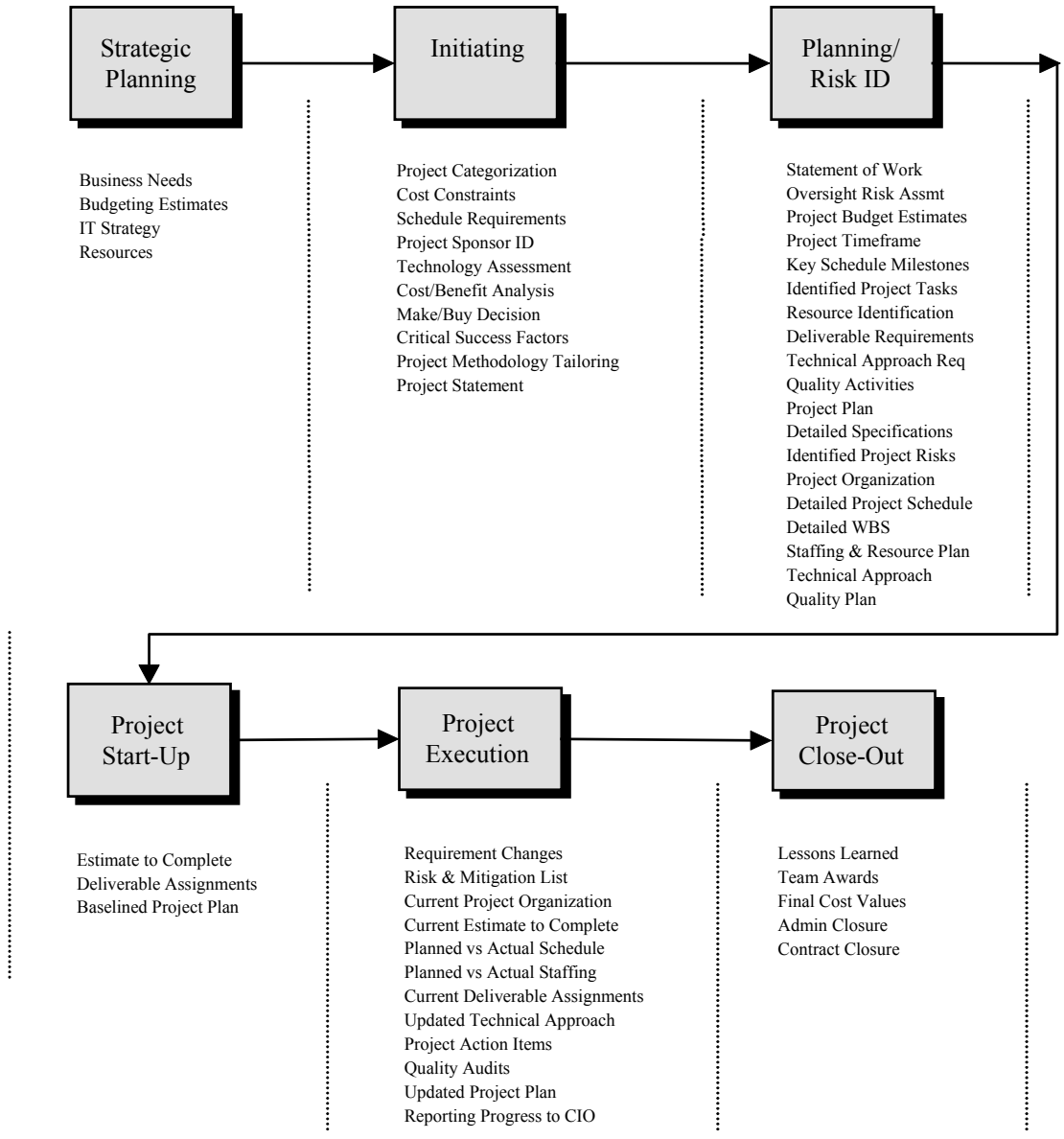
- Negotiate contract close-out.

Project Management Overview

Planning Process

The project plan represents the basic tool for successfully executing a project. The following figure depicts the evolutionary nature of the project plan.

The Evolving Plan



The Planning Process

The project plan evolves through the early stages and, by the time the project is ready to begin project execution, contains the detail required to successfully complete the project. Then, when implementation begins, the plan is updated as required.

Planning in the Initiating Phase

While only very general information may be known about the project at this time, it is important to capture this information for the planning phase. In this stage, the focus of planning is on the project definition and on getting the project underway. A strategy for deriving a solution to the stated goals is important at this point. The problem being addressed by the project must be clearly stated, its goals and objectives identified, and the success criteria documented. Also, the major assumptions, and constraints that apply to the project must be defined. Without a description of this information, a project plan is difficult to complete.

Planning in the Planning Stage

The project plan is completed in the Project Planning and Risk Identification stage of a project. For large projects, this stage may be run as a mini-project, with a team of people dedicated to the effort. For very small projects, the plan may be developed by a group of people as a part-time job. Generally, various skill sets are required to complete a successful project plan.

During this project stage, details of the plan are determined and an approach is defined. The full project plan is then developed. The plan may include the following elements: a project summary, a work breakdown structure, a project organization chart, a schedule, a list of identified risks, a budget, a list of deliverables, a description of planned quality activities, a description of the configuration management process to be used, and a summary of project requirements.

The development of the project plan is an iterative process. Each element of the plan is regularly revisited for changes and refinements, based upon further analysis and decisions made in developing other plan elements. This refinement also develops “buy-in” from the project team and stakeholders.

It is critical to get buy-in on the project plan from the involved parties prior to actually starting the project. Approval of the plan commits the resources needed to perform the work.

Planning in the Project Start-up Stage

To transition a project from planning to execution requires some type of start-up activities. In the start-up stage, the team is assembled and a kickoff meeting is held to familiarize the team with the elements of the plan and the requirements of the system. Specific work packages are developed which detail and specify the activities being performed, as well as the cost and schedules associated with those activities.

Sometimes there may be a need to update the project plan during this stage to reflect negotiations or refinements in scope that occurred prior to the actual start of the project. In these cases, the plan is reviewed and updated prior to presentation to the team.

Also, in some projects, auxiliary plans (such as the configuration management or quality assurance plans) are detailed in the start-up phase. These plans are developed from strategies defined in the project planning stage.

Planning in the Project Execution Stage

Planning in the project execution stage consists of replanning when it is determined that the project is not on track with the current plan or that changes are needed. It is important to know that project plans will change and that replanning is a natural part of the process. Replanning does not necessarily mean that a project is in trouble. Frequent and extensive replanning may, however, indicate that there are some serious issues with the project plan. It is better to replan than to simply throw away the original plan and operate without a plan.

Planning in the Project Close-Out Stage

A close-out process is performed once the project objectives have been met. Closing a project should be fairly routine. The first step is acceptance of the system by the users. The determination is based upon the success criteria defined in the very early concept and planning stages of the project. This acceptance may be very informal or it may be very formal depending upon the criteria defined in the plan.

Once the project is accepted, all deliverables and project metrics are placed in an archived repository. Building a repository of past projects serves as both a reference source for estimating other efforts and as a training tool for project managers. The information archived should always include the project plan history, any metrics collected on the project, and a record of lessons learned.

Celebrating the success recognizes the project team's efforts. The recognition may be formal or informal, depending upon the guidelines of the state organization.

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